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REMARKS

In response to the Office Action mailed on February 23, 2004, Applicant respectfully requests reconsideration. To further the prosecution of this Application, Applicant submits the following amendments to claims 1, 6, 19, 22, 24, 37, 38, and 43 as well as remarks discussing patentability of rejected and newly added claims.

Claims 1-45 were previously pending in the subject Application. Claims 46-57 are being added by way of this amendment. Claims 5, 23, and 40 are being cancelled by way of this amendment. Thus, after entry of this Amendment, claims 1-4, 6-22, 24-39, and 41-57 will be pending. No new matter was added to the application when amending or adding these claims. Also, the submission of any amendments should not be interpreted as acquiescing to any of the rejections.

The following remarks address the rejections of the remaining claims as set out in the present Office Action and patentability of newly added claims 46-57. Applicant respectfully requests reconsideration.

Objection to the Specification

The Office Action points out several typographical errors in the specification. Applicant has amended the specification in accordance with Examiner's suggestion and is appreciative of his careful review. Applicant respectfully requests that the Examiner withdraw this objection to the disclosure.

The Abstract of the subject application has been objected to for exceeding 150 words in length. Applicant has amended the Abstract to cure this minor informality. The substitute Abstract above, which replaces the originally filed Abstract, includes 150 words or less. Accordingly, Applicant respectfully requests that the Examiner withdraw this objection.

The use of trademarks in the specification has been corrected by capitalizing terms as noted by the Examiner. Applicant is appreciative of the Examiner's careful review and respectfully requests withdrawal of the objection to the specification.

Objection to the Drawings

The Office Action includes an objection to Figure 7 because it includes the reference number "424" not mentioned in the detailed description. The specification of the subject application has been amended at page 48 line 7 to include the appropriate reference to step 424 in Figure 7. The Office Action includes an objection to Figure 6 because it includes a typographical error. A proposed drawing correction as well as corrected drawing is being submitted with this reply. Applicants respectfully request that the Examiner withdraw his objections to the drawings.

Objections to Claims 22, 37, and 43

The Office Action includes an objection to claims 22, 37, and 43 for minor informalities. Applicant has amended the claims in accordance with the Examiner's suggestion.

Rejection of Claim 1, 19 and 38

The Examiner has rejected originally submitted claim 1 under 35 U.S.C. § 102(e) as being anticipated by Bapat (U.S. Patent 6,236,996). The Office Action likens elements in Bapat to those in claim 1 to reject the claimed invention. Claim 1 has been amended to include the limitations of original claim 5. Thus, the following discussion is directed toward patentability of originally submitted claim 5 (now amended claim 1) and no new matter has been added to the claims.

The Office Action contends that column 11 lines 11-23, column 15 lines 28-34, and column 27 line 50 disclose the limitations as recited by original claim 5 (now amended claim 1). Applicant respectfully disagrees that Bapat teaches or suggests every claim limitation as in amended claim 1. The Office Action provides no specific analysis as to how the Examiner likens elements in Bapat to those cited in the claimed invention.

In summary, the cited passage at column 11 lines 11-23 in Bapat indicates that a global deny rule can specify a group of users that cannot perform an operations on a managed object. The cited passage at column 15 lines 28-34 in Bapat refers to figure 5 illustrating a technique of individually comparing an access request to each of different rules until a match is found. Once a match a single rule is selected, the access control decision function 176 applies the first matching rule found corresponding to the access request. The cited passage at column 27 line 50 in Bapat refers to a method of enforcing access control. Basically, the method in this passage parallels the method in figure 5 except the disclosed embodiment uses associated grant and deny tables to determine whether a particular user shall be afforded access rights. That is, the access request is checked against each table until a match is found.

In contradistinction to the techniques in Bapat, the invention as recited by amended claim 1 includes the limitation “wherein at least one rule in the selected set of rules contains a rule operation including an unconditional disregard instruction; and wherein the step of performing includes the steps of performing less than all rule operations defined within the at least one rule in the selected set of rules by sequentially performing rule operations in each rule in the selected set of rules until the unconditional disregard instruction is performed thereby terminating the performance of any remaining rule operations in the selected set of rules.”

Amended claim 1 is unique over Bapat for a number of reasons. For example, Bapat does not disclose “selecting a set of rules,” “sequentially performing the rule operations in each rule in the selected set of rules,” or performing operations in a selected set of rules “until an unconditional disregard instruction is performed thereby terminating the performance of any remaining rule operations in the selected set of rules.” Bapat discloses comparing an access request to each of many different rules until a match is found. After finding a match of an access request to a particular rule in Bapat, the access control decision function 176 applies the first matching rule found 230. Thus, Bapat selects only a single rule (i.e., the first matching rule in figure 5) for executing after finding a match. The claimed invention recites “selecting a set of rules,” not a single rule. Furthermore, Bapat does not teach or suggest “sequentially performing rule operations” in each rule in the selected set of rules as in the claimed invention. Instead, Bapat discloses performing just a first matching rule found as shown in figure 5. There is no sequentially performing multiple selected rule operations. Yet further, according to the claimed invention, the operations in the selected set of rules are sequentially performed until performing a disregard instruction, which terminates performance of any following operations in each rule in the selected set of rules. Again, in Bapat, only one rule is selected from a set of rules, and only the first matching rule is performed. Thus, there is no performing multiple rules and there is no need in Bapat nor is there a discussion in Bapat to support an executable “disregard instruction” as in the claimed invention to halt performance of other operational instructions associated with a selected set of rules. The claimed invention as in amended claim 1 is useful because such a technique i) affords more flexibility when since multiple rules are performed to identify access rights and ii) saves processing time by not having to process all operations in a selected set of operations after performing a disregard instruction in a selected set of rules. Bapat does not teach or suggest any of these utilities.

Based on the above distinctions, Applicant respectfully submits that the rejection of original claim 5 (now amended claim 1) under 35 U.S.C. § 102(e) is improper. If the rejection is to be maintained, Applicant requests that the Examiner point out with particularity where the cited prior art discloses a configuration including all of the claim limitations as recited by amended claim 1. Accordingly, allowance of claim 1 as well as corresponding remaining dependent claims 2-4, and claims 6-14 is respectfully requested.

Claim 19 has been amended to include limitations of previously pending claim 23. Thus, now amended claim 19 includes similar limitations as recited in claim 1 above. For example, claim 19 recites "wherein at least one rule in the selected set of rules in the authorization database contains a rule operation including an unconditional disregard instruction; and wherein when the processor performs at least one rule operation, the processor performs less than all rule operations defined within the at least one rule in the selected set of rules by sequentially performing rule operations in each rule in the selected set of rules until the unconditional disregard instruction is performed thereby terminating the performance of any remaining rule operations in the selected set of rules." For applicable reasons as discussed above, claim 19 and corresponding dependent claims 20-22, and 24-32 are patentably distinct over the cited prior art.

Claim 38 has been amended to include limitations of previously pending claim 40. Thus, now amended claim 38 includes similar limitations as recited in claim 1 above. For example, claim 38 recites "wherein at least one rule in the selected set of rules contains a rule operation including an unconditional disregard instruction; and wherein when the computer program logic causes the processor to perform the operation of performing, the computer program logic causes the processor to perform the operation of: performing less than all rule operations defined within the at least one rule in the selected set of rules by sequentially performing rule operations in each rule in the selected set of rules

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until the unconditional disregard instruction is performed thereby terminating the performance of any remaining rule operations in the selected set of rules.” For applicable reasons as discussed above, claim 38 and corresponding dependent claims 39, 41, and 42 are patentably distinct over the cited prior art.

Applicant would like to point out that the pending dependent claims further distinguish the claimed invention over the cited prior art. For example, claim 6 recites “wherein the selected set of rules is arranged hierarchically such that rules containing rule operations that are more specific are performed before rule operations that are more general.” The Office Action rejects claim 6 under 35 U.S.C. § 102(e) based on Bapat column 15 lines 28-34 and column 11 lines 11-23. The Office Action provides no analysis as to how the Examiner likens elements in Bapat to those cited in the claimed invention.

The passage at column 15 lines 28-34 in Bapat discloses that a default rule is applied if no matching rule is found for an access request. The passage at column 11 lines 11-23 in Bapat discloses that his system can include one global deny rule object and one global allow rule object. Neither of these cited passages is equivalent to or suggestive that the selected set of rules be arranged hierarchically such that rules containing rule operations that are more specific are performed before rule operations that are more general as in the claimed invention. For example, Bapat discloses comparing the access request to select a single rule associated with the access request. There is no indication in Bapat that the selected rule (rule identified as a result of the compare process) includes multiple rule operations nor is there any indication that a selected set of rules from the master set of rules are arranged in a hierarchy from general to specific. Providing a hierarchical ordering of the selected set of rules from general to specific operations provides a funneling function for reducing processing time allocated to execute the operations. Applicant respectfully requests allowance of claim 6 and claim 24. If the rejection is to be maintained, Applicant requests

that the Examiner point out with particularity where the cited prior art discloses a configuration as recited by claim 6.

Claim 8 recites “evaluating the disregard criteria against any remaining unperformed rule operations in the selected set of rules; and marking any remaining unperformed rule operations in the selected set of rules that match the disregard criteria to be disregarded from further rule processing.” The Office Action rejects claim 8 under 35 U.S.C. § 102(e) based on Bapat column 26 line 51 through column 27 line 28. The Office Action provides no analysis as to how the Examiner likens elements in Bapat to those cited in the claimed invention.

The cited passage in Bapat discloses how to generate permissions tables based on a corresponding access control rule in the access control tree. Neither of these cited passages is equivalent to or suggestive of the limitations in claim 8. For example, Bapat does not evaluate disregard criteria because Bapat does not support a disregard instruction and there is no such criteria in Bapat to be evaluated. Furthermore, there is no marking of any rules whatsoever in Bapat. For example, there is no marking of any remaining unperformed rule operations in the selected set of rules that match the disregard criteria. One purpose of marking the rules is to identify which operation instructions in a set of rules are to be disregarded from further rule processing. This can save a processor from needlessly executing operations that are to be disregarded. Applicant respectfully requests allowance of claims 8, 11, 26 and 29. If the rejection is to be maintained, Applicant requests that the Examiner point out with particularity where the cited prior art discloses a configuration as recited by amended claim 1.

Claim 13 recites “wherein the disregard instruction is a conditional instruction that has a condition that must be met before the disregard instruction is performed.” The Office Action rejects claim 13 under 35 U.S.C. § 102(e) based on Bapat column 27 lines 50 et seq. The Office Action provides no

analysis as to how the Examiner likens elements in Bapat to those cited in the claimed invention.

The cited passage in Bapat discloses how to generate permissions tables based on a corresponding access control rule in the access control tree. This passage is not equivalent to or suggestive of the limitations in claim 13. For example, Bapat does not discuss use of a disregard instruction, especially one that is performed. Moreover, Bapat does not discuss a “conditional” disregard instruction, which is a conditional instruction that requires occurrence of a condition before the conditional disregard instruction is executed. One purpose of supporting use of a conditional disregard instruction is to conditionally disregard certain rules in the selected set of rules depending on the occurrence of the condition. Bapat does not disclose either an unconditional disregard instruction. Nor does Bapat mention the difference between either of these concepts. Thus, Bapat does not teach or suggest every limitation in claim 13. Applicant respectfully requests allowance of claims 13 and 31.

New Claims 46-57

New claims 46-51 depend from claim 1 and include additional distinguishing limitations over Bapat. Applicant also respectfully requests allowance of these claims.

Claim 46 recites “wherein the step of selecting a set of rules from at least one master set of rules includes selecting a set of rules containing multiple rules from at least one master set of rules, at least one of the multiple rules including multiple rule operations to be performed in sequential order.” Bapat applies only a single rule. Claim 46 further recites “for a given rule of the multiple rules: i) performing a filter operation associated with the given rule to identify whether to execute any rule operations in the given rule; and ii) performing at least a portion of the multiple rule operations in sequential order to determine whether to provide

access to a storage system in response to receiving the access request.” Bapat does not teach or suggest perform a filter operation to identify whether to execute any rule operations in a given rule. Nor does Bapat teach or suggest performing multiple rule operations on a given rule in sequential order.

Claim 47 depends from claim 46 and recites “wherein the filter operation is an IF-THEN operation and performance of the IF-THEN operation provides an indication whether to perform at least one of the multiple rule operations in the given rule.” Bapat does not teach or suggest use of an IF-THEN operation to determine whether to apply a rule in a set of rule selected from a master set of rules.

Claim 48 depends from claim 47 and recites “wherein performing at least a portion of the multiple rule operations in the given rule includes performing a disregard instruction in the given rule that limits performance of other rule operations in the given rule.” Bapat does not teach or suggest performing multiple rule operations, especially not one of which is a disregard instruction. Nor does Bapat teach or suggest limiting performance of other rule operations.

Claim 49 depends from claim 48 and recites “wherein the disregard instruction is a conditional disregard instruction, which when executed limits a performance of other rule operations in the given rule depending on occurrence of a corresponding condition.” Bapat does not teach or suggest use of a conditional disregard to limit performance of other rule operations depending on occurrence of a condition.

Claim 50 depends from 49 and recites “performing at least one other rule operation in the given rule after performing a conditional disregard instruction.” Bapat does not perform any other rule operations for an access request after applying a particular rule.

Claim 51 depends from claim 47 and recites “wherein performance of the IF-THEN operation includes identifying whether an application generating the access request uses a particular resource in the storage system as well as whether a requestor associated with the access request is a member of a particular specified group and, if so, performing the rule operations in the given rule.” Bapat makes a decision to allow access based only on an identity of a user requesting access.

Rejection of Claims 15, 33 and 43

The Examiner has rejected originally submitted claim 15 under 35 U.S.C. § 102(e) as being anticipated by Bapat (U.S. Patent 6,236,996). The Office Action likens elements in Bapat to those in claim 15 to reject the claimed invention. The following discussion is directed toward patentability of originally submitted claim 15.

The Office Action contends that column 26 line 51 through column 27 line 28, and column 27 line 50 et seq. disclose the limitations as recited by original claim 15. Applicant respectfully disagrees that Bapat teaches or suggests every claim limitation as in claim 15. The Office Action provides no specific analysis as to how the Examiner likens elements in Bapat to those cited in the claimed invention.

The invention as recited by claim 15 includes the limitation “applying at least one filter operation to a master set of rules to produce a list of rules to which the filter matches.” Bapat discusses in Figure 5 as well as in the cited passages that a compare operation is used to identify to which rule an access request pertains. After finding a match, Bapat applies the first matching rule found 230. As recited in claim 15, the method includes producing a list of rules, not merely a single rule as in Bapat. Thus, Bapat does not teach every limitation in claim 15.

The utility of generating a list of rules from a master set of rules is discussed throughout the detailed description and summary of the subject application.

Applicant requests that the Examiner point out with particularity where the cited prior art discloses a configuration as recited by amended claim 15. Accordingly, allowance of claim 15 as well as corresponding remaining dependent claims 16-18 is respectfully requested.

Claim 33 and 43 include similar limitations as claim 15. Allowance of these claims as well as dependent claims 34-36 is respectfully requested.

Rejection of Claims 37 and 44

The Examiner has rejected originally submitted claims 37 under 35 U.S.C. § 102(e) as being anticipated by Bapat (U.S. Patent 6,236,996). The Office Action likens elements in Bapat to those in claim 37 to reject the claimed invention.

The Office Action contends that Bapat discloses the limitations as recited by original claim 37. Applicant respectfully disagrees that Bapat teaches or suggests every claim limitation as in claim 37.

First, the invention as recited by claim 37 includes the limitations "wherein the rule set includes a plurality of rules." Bapat discloses selecting only a single rule from a set of rules, not a rule set including a plurality of rules as in the claimed invention. Further, Bapat does not disclose "each rule including a filter operation" as in the claimed invention. In fact, Bapat does not include any executable filter operations that are performed. Additionally, Bapat does not disclose "the rule set includes a disregard instruction" as in the claimed invention. Bapat, when finding a match with the access request, applies the first matched rule found. There would be no need for a disregard instruction in the rule set

including a plurality of rules, which Bapat also does not disclose. Additionally, Bapat does not discuss performing the “the disregard instruction to limit performance of any remaining rule operations in the selected set of rules” because Bapat does not disclose existence or use of a disregard instruction. Nor does Bapat discuss selecting a set of rules and then performing less than the set of selected rules. Thus, Applicants respectfully request that the Examiner withdraw the rejection of claim 37 as well as claim 44, which includes similar limitations.

Rejection of Claims 45

The Examiner has rejected originally submitted claims 45 under 35 U.S.C. § 102(e) as being anticipated by Bapat (U.S. Patent 6,236,996). The Office Action likens elements in Bapat to those in claim 45 to reject the claimed invention.

Applicant disagrees with the Office Action’s assertion that claim 45 is anticipated because claim 45 includes distinguishing limitations over Bapat. For example, claim 45 recites “performing a rule operation in the at least one rule, the rule operation including a disregard instruction that when performed, causes non-performance of at least one other rule operation in at least one rule that is selected for performance to determine the access control decision.” Bapat discloses applying a single rule that matches the access request. The claimed invention recites multiple rule operations (e.g., the “disregard instruction” and the “at least one other rule operation”) that are performed to identify access control. Bapat applies only a first rule (see figure 5) that matches the access request. Also, Bapat does not teach or suggest that certain rule operations are not performed when a disregard instruction in the rule set is performed as previously discussed. Thus, Applicant respectfully requests withdrawal of the rejection and allowance of claim 45.

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CONCLUSION

In view of the foregoing remarks, Applicants submit that the pending claims as well as newly added claims are in condition for allowance. A Notice to this affect is respectfully requested. If the Examiner believes, after reviewing this Response, that the pending claims are not in condition for allowance, the Examiner is respectfully requested to call the Applicant(s) Representative at the number below.

Applicants hereby petition for any extension of time which is required to maintain the pendency of this case. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 50-0901.

If the enclosed papers or fees are considered incomplete, the Patent Office is respectfully request(s)ed to contact the undersigned Attorney at (508) 366-9600, in Westborough, Massachusetts.

Respectfully submitted,



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